

ART 34 MDT

Claims

1. A fuel cell for production of electrical energy, comprising
a fuel chamber (1)
5 an anode (2a),
a cathode (2b),
an electrolyte (3) disposed between said anode and said cathode,
an oxidant chamber (4), wherein said chambers (1) and (4) enclose said anode, cathode
and electrolyte,
10 characterised in that:
said electrolyte (3) is a ceramic CSC (ceria salt composite) electrolyte comprising at
least one salt and at least one ceria phase.
2. A fuel cell according to claim 1, wherein the electrolyte comprises salts selected
from salts that can make the CSC material function as a specific conductor for
particular ions such as H⁺, O²⁻, or of other ionic charge, e.g., cationic Li⁺, Na⁺, K⁺, or
anionic, CO₃²⁻, Cl⁻ and F⁻ etc., or a mixture thereof, preferably natural salts, e.g. NaCl.
3. A fuel cell according to claim 1 or 2, wherein the electrodes comprises binary
20 oxides, such as A_xB_yO_z (A, B = Li, Mg, Ca, Sr, Cr, Fe, Co, Ni, Mn, Cu, Y, La, Ce, Zr,
Ti, etc.), typically, Li_xMO_y (M = Ni, Co, Mn), Ce_{1-x}B_xO_{2-y}, MnO₂ and
La_{1-x}Sr_xMn(Co)O₃.
4. A fuel cell according to claim 1, wherein the electrolyte is sulphate-based CSC for
25 sulphur containing fuels, intended to operate as a high sulphur tolerant CFC device,
acting as a pre-gas treatment station and intended to be combined with MCFC power
plants.